

August 5, 2003  
Application No. 09/848,904

### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims

Claim 1 (currently amended): A method for making silica, comprising:

delivering a silica precursor comprising [[a]] at least one perfluorinated carbon group (R<sub>F</sub>) having a carbon atom bonded directly or through an intermediate oxygen atom to silicon to a conversion site; and  
passing the silica precursor through a conversion flame to produce silica soot.

Claim 2 (currently amended): The method of claim 1, wherein ~~the perfluorinated group R<sub>F</sub> is~~ selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, alkoxy, and aryl groups.

Claim 3 (currently amended): The method of claim 1, wherein the silica precursor is represented by the general formula  $\text{Si}(\text{OR}_F)_x\text{F}_{4-x}$ , where ~~R<sub>F</sub> represents the perfluorinated group~~ and x is an integer ranging from 1 to 4.

Claim 4 (currently amended): The method of claim 1, wherein the silica precursor further comprises at least one substituent selected from [[a]] the group consisting of fluorine and chlorine.

Claims 5 (currently amended): The method of claim 1, wherein the silica precursor is represented by the general formula  $\text{SiCl}_x\text{F}_y(\text{R}_F)_z$ , where x, y, and z are integers, and the sum of x, y, and z is equal to 4, ~~and R<sub>F</sub> represents the perfluorinated group.~~

Claim 6 (currently amended): The method of claim 5, wherein R<sub>F</sub> comprises at least one substituent selected from [[a]] the group consisting of chlorine and fluorine.

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Claim 7 (currently amended): The method of claim 5, wherein ~~the perfluorinated group~~  $R_F$  comprises a group selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy~~, and aryl groups.

Claim 8 (currently amended): The method of claim 1, wherein the silica precursor is represented by the general formula  $Si(R_F)_x F_{4-x}$ , where  ~~$R_F$  represents the perfluorinated group~~ and  $x$  is an integer ranging from 1 to 4.

Claim 9 (currently amended): The method of claim 5, wherein ~~the perfluorinated group~~  $R_F$  comprises a group selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy~~, and aryl groups.

Claim 10 (original): The method of claim 1, wherein the silica precursor is delivered to the conversion site in vapor form.

Claim 11 (original): The method of claim 10, wherein the silica precursor is delivered to the conversion site in a gas stream comprising an inert gas.

Claim 12 (currently amended): The method of claim 1, wherein a fuel combusted to produce the flame comprises one selected from [[a]] the group consisting of CO, (CN)<sub>2</sub>, (NCO)<sub>2</sub>, and combinations thereof.

Claim 13 (currently amended): The method of claim 1, further comprising delivering to the conversion site a compound capable of being converted to an oxide of at least one member of [[a]] the group consisting of B, Al, Ge, Sn, Ti, P, Se, Er, S, Ca, Ba, Y, Yb, Ta, La, Sb, and Bi.

Claim 14 (original): The method of claim 1, further comprising depositing the silica soot on a deposition surface.

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Claim 15 (original): The method of claim 14, further comprising consolidating the silica soot into glass.

Claim 16 (original): The method of claim 15, wherein the deposition surface is provided by a rotating mandrel.

Claim 17 (original): The method of claim 16, further comprising drawing the glass into a core cane.

Claim 18 (cancelled)

Claim 19 (currently amended): A method for making fused silica, comprising:  
delivering a silica precursor comprising [[a]] at least one perfluorinated carbon group having a carbon atom bonded directly or through an intermediate oxygen atom to silicon to a conversion site;  
passing the silica precursor through a conversion flame to produce silica soot; and  
depositing the silica soot onto a deposition surface, wherein the silica soot is immediately consolidated into glass.

Claim 20 (currently amended): The method of claim 19, wherein the perfluorinated group is selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, alkoxy, and aryl groups.

Claim 21 (currently amended): The method of claim 19, wherein the silica precursor is represented by the general formula  $\text{Si}(\text{OR}_F)_x\text{F}_{4-x}$ , where  $\text{R}_F$  ~~represents the perfluorinated group and~~  $x$  is an integer ranging from 1 to 4.

Claim 22 (currently amended): The method of claim 19, wherein the silica precursor further comprises at least one substituent selected from [[a]] the group consisting of fluorine and chlorine.

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Claims 23 (currently amended): The method of claim 19, wherein the silica precursor is represented by the general formula  $\text{SiCl}_x\text{F}_y(\text{R}_F)_z$ , where x, y, and z are integers, and the sum of x, y, and z is equal to 4, ~~and  $\text{R}_F$  represents the perfluorinated group.~~

Claim 24 (currently amended): The method of claim 23, wherein  $\text{R}_F$  comprises at least one substituent selected from ~~[[a]]~~ the group consisting of chlorine and fluorine.

Claim 25 (currently amended): The method of claim 23, wherein ~~the perfluorinated group ( $\text{R}_F$ )~~ comprises a group selected from ~~[[a]]~~ the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy~~, and aryl groups.

Claim 26 (currently amended): The method of claim 19, wherein the silica precursor is represented by the general formula  $\text{Si}(\text{R}_F)_x\text{F}_{4-x}$ , where  ~~$\text{R}_F$  represents the perfluorinated group~~ ~~and~~ x is an integer ranging from 1 to 4.

Claim 27 (currently amended): The method of claim 26, wherein ~~the perfluorinated group ( $\text{R}_F$ )~~ selected from ~~[[a]]~~ the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy~~, and aryl groups.

Claim 28 (currently amended): The method of claim 19, wherein a fuel combusted to produce the flame comprises one selected from ~~[[a]]~~ the group consisting of CO,  $(\text{CN})_2$ ,  $(\text{NCO})_2$ , and combinations thereof.

Claim 29 (currently amended): A method for making silica, comprising:

- ° delivering a silica precursor comprising ~~a chloro derivative~~ at least one perhalogenated carbon group ( $\text{R}_Z$ ) having a carbon atom bonded directly or through an intermediate oxygen atom to silicon to a conversion site; and
- passing the silica precursor through a flame to produce silica soot.

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Claim 30 (cancelled)

Claim 31 (currently amended) The method of claim 29, wherein the silica precursor ~~comprising a~~  
~~chloro-derivative which~~ has ~~the~~ a general formula selected from ~~[[a]]~~ the group consisting  
of ~~[[Si(R<sub>F</sub>)<sub>4</sub> and Si(OR<sub>F</sub>)<sub>4</sub>]]~~ Si(R<sub>Z</sub>)<sub>4</sub> and Si(OR<sub>Z</sub>)<sub>4</sub>.

Claim 32 (cancelled)

Claim 33 (cancelled)

Claim 34 (new) The method of claim 1, wherein R<sub>F</sub> is a perfluorinated alkyl group having carbon  
atoms ranging from 1 to 5, where all valences except for C-C, Si-C, or C-O linkages are  
satisfied by fluorine.

Claim 35 (new) The method of claim 31, wherein R<sub>Z</sub> is a perhalogenated alkyl group having  
carbon atoms ranging from 1 to 5, where all valences except for C-C, Si-C, or C-O  
linkages are satisfied by halogens.